

Pityrodia iphthima* (Lamiaceae), a new species endemic to banded ironstone in Western Australia, with notes on two informally recognised *Pityrodia

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Abstract

Shepherd, K.A. *Pityrodia iphthima* (Lamiaceae), a new species endemic to banded ironstone in Western Australia, with notes on two informally recognised *Pityrodia*. *Nuytsia* 17: 347–352 (2007). *Pityrodia iphthima* K.A.Sheph. is a new species recently discovered on a single banded ironstone outcrop north of Meekatharra. This species is allied to the declared rare *P. augustensis* Munir, but is morphologically distinct in having discoloured leaves, larger, ovate bracts, longer calyx tube, shorter branched hairs on the outer surface of the calyx and shorter filaments. Distribution and habit images of *P. iphthima* are provided. In addition, the informal taxon *Pityrodia* sp. Dalwallinu (M. Hislop 1860) is synonymised with *P. bartlingii* (Lehm.) Benth.

Introduction

Recent flora surveys of Banded Iron Formations (BIF) of the Yilgarn Craton in Western Australia by the Department of Environment and Conservation (DEC) have resulted in the discovery of 20 potentially new species (Gibson *et al.* 2007, and references cited therein). Specimens collected from the upper slopes of a banded ironstone outcrop during a DEC survey of the Robinson Ranges were initially thought to be the declared rare species *Pityrodia augustensis* Munir, which is currently only known from a single population over 200 km away. On closer examination, the Robinson Ranges plants were found to be morphologically distinct and the informal phrase name *Pityrodia* sp. Robinson Range (R. Meissner & B. Bayliss 725) was applied in January 2007. As this new species is currently known from only a single population it has been given a Priority One status in accordance with DEC Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–).

Two other phrase-named *Pityrodia* are currently recognised in Western Australia (Western Australian Herbarium 1998–). *Pityrodia* sp. Dalwallinu (M. Hislop 1860) was proposed as a putative new taxon in 2000, but closer examination of herbarium material during this study has found that this taxon can not be distinguished from the morphologically variable *Pityrodia bartlingii* (Lehm.) Benth. and should be regarded as a synonym of that name. *Pityrodia* sp. Yilgarn (A.P. Brown 2679) is a Priority Three taxon (Atkins 2006) closely allied to the rare species *P. scabra* A.S.George, however further field collections of flowering material are required to fully resolve its status.

This paper formally describes *Pityrodia* sp. Robinson Range (R. Meisner & B. Bayliss 725) as *P. iphthima* K.A.Sheph. ahead of the taxonomic resolution of *Pityrodia* sp. Yilgarn (A.P. Brown 2679),

as *P. ipthima* is currently only known from a single banded ironstone outcrop that maybe under threat from future mining activities. The recognition of this new species brings the total number of named species of *Pityrodia* in Western Australia to 26, nearly half of which have a priority conservation status.

Methods

This study was based on the examination of herbarium specimens at PERTH. Vegetative and floral characters were recorded from pressed and rehydrated material. Fruit characters were not recorded due to a lack of available material. The Interim Biogeographic Regionalisation for Australia (IBRA) categories of Thackway and Cresswell (1995) and Environment Australia (2000) as modified on FloraBase (Western Australian Herbarium 1998–) are used here. The distribution map was produced using DIVA-GIS freeware Version 5.2.0.2 and includes IBRA Version 6.1 bioregions (Department of Environment and Water Resources 2007). Due to conservation concerns the precise locality of this species has been withheld.

Taxonomy

Pityrodia ipthima K.A.Sheph. *sp. nov.*

Pityrodia augustensi Munir affini sed foliis conduplicatis discoloribus; bracteis anguste ovatis 7–20 mm longis; calycis tubo 0.8–3 mm longo; calycis pilis 0.7–1.3 mm longis; filamentis abaxialibus 7.1–9 mm longis et adaxialibus 6.8–7.5 mm longis differt.

Typus: Robinson Ranges, Western Australia [precise locality withheld for conservation purposes], 17 August 2006, R. Meissner & B. Bayliss 725 (*holo:* PERTH 07487266).

Pityrodia sp. Robinson Range (R. Meissner & B. Bayliss 725), in FloraBase, <http://florabase.dec.wa.gov.au> [accessed 4 May 2007].

Tomentose *shrubs* 0.8–1.2 m high. *Stems and branches* terete, with a dense greenish-white indumentum of peltate stellate hairs 0.3–0.5 mm diam. *Leaves* opposite, sessile, conduplicate, narrowly ovate to narrowly elliptic (when flattened), entire, 23–41 mm long, 4–10 mm wide, discolorous; apex acute to obtuse; abaxial surface tomentose with sessile, peltate stellate hairs 0.2–0.3 mm diam.; adaxial surface almost glabrous with occasional simple or branched hairs *c.* 0.5 mm long and scattered sessile glands. *Inflorescences* terminal, raceme-like with 10–40 flowers, 55–170 mm long, with a woolly-tomentose indumentum of simple or branched hairs and scattered sessile glands. *Flowers* pedicellate, solitary or in 3-flowered contracted cymes; pedicels 2–3 mm long with dense, branched hairs; bracts leaf-like, sessile, narrowly obovate, 7–20 mm long, 2–3.5 mm wide, with entire, flat margins and acute apex, the abaxial surface densely hairy with simple or branched hairs 0.3–0.9 mm long, the adaxial surface with scattered simple (rarely branched) hairs 0.2–0.7 mm long, both surfaces with scattered sessile glands; bracteoles elliptic to narrowly ovate or trullate, 2–6.5 mm long, 1–3.6 mm wide, with entire, flat margins and acute to obtuse apex, the abaxial surface moderately hairy to tomentose with branched hairs 0.2–0.7 mm long, the adaxial surface with a few scattered simple or branched hairs 0.1–0.2 mm long, both surfaces with scattered sessile glands. *Calyx* green with dark purple-brown lobes, persistent, 7.5–10 mm long; tube 0.8–3 mm long; lobes narrowly ovate, 6.8–8.0 mm long, 1.9–2.4 mm wide, with entire, flat margins and

acute apex, the outer surface with branched hairs 0.7–1.3 mm long and scattered sessile glandular hairs, the inner surface with a few scattered simple or branched hairs 0.4–1 mm long and with sessile glands. *Corolla* deep lilac grading to white, with brown spots inside the tube, 8–15 mm long, 7–10 mm wide, 2-lipped; tube broad, the inner surface glabrous except for a dense ring of hairs 1.9–2.1 mm long above ovary and at base of staminal filaments; abaxial lip 3-lobed with lateral lobes elliptic, 3.7–6.5 mm long, 3.2–5.3 mm wide, the central lobe oblate, 5.3–7 mm long, 6.6–10.6 mm wide; adaxial lip 2-lobed, the lobes elliptic, 3.5–5.3 mm long, 2.9–4.6 mm wide; outer surface of the tube and lobes with scattered, simple or rarely branched, hairs 0.6–0.9 mm long and with scattered sessile and stalked glandular hairs; inner surface of the central lobe with scattered hairs towards the base. *Stamens* didynamous; abaxial pair usually included, sometimes shortly exerted, with filiform filaments 7.3–9 mm long, glabrous, anthers elliptic to ovate, 2.1–2.8 mm long, and basal half of locules divergent, appendages 0.1–0.2 mm long; adaxial pair included, with filiform filaments 6.8–7.5 mm long, anthers 2.4–3.6 mm long, appendages 0.2 mm long. *Gynoecium* 4-locular, with one axile ovule in each locule. *Ovary* round to obloid, 1.2–2.8 mm long, 1.4–2.1 mm diam., glabrous basally, densely hairy in the distal half with straight hairs c. 0.2 mm long; style 12–17 mm long, glabrous; stigma 2-lobed. (Figures 1, 2)

Specimen examined. WESTERN AUSTRALA: [locality withheld] 18 Aug. 2006, R. Meissner & B. Bayliss 726 (PERTH 07487231).

Distribution and habitat. Currently known only from a north-facing upper hillslope of rocky banded ironstone, in the Gascoyne region of the Eremaean Botanical Province (Figure 3). This species occurs in skeletal red-brown sandy loam in sparse *Acacia aneura* shrubland with *Eremophila pendulina*, *Philotheca brucei* subsp. *cinerea* and *Prostanthera ferricola* over hummock grassland of *Triodia melvillei* (Figure 1).



Figure 1. *Pityrodia ipthima* growing on the upper slope of a banded ironstone outcrop in the Robinson Ranges. Photograph by R.A. Meissner.

Phenology. Due to the limited collections, flowering specimens are only known from August.

Conservation status. *Pityrodia iphthima* is currently known from a single population of a few isolated plants confined to a banded ironstone outcrop, and is therefore under threat from possible future mining activities. As it is currently poorly known it has been accorded a Priority One conservation status, as defined by the DEC Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–).

Etymology. From the Greek *iphthimos* (strong, stalwart, valiant) as this species grows in an extreme habitat on a rocky, ironstone hillside.

Affinity. *Pityrodia iphthima* appears to be closely related to *P. augustensis*, both species having greenish-white, tomentose indumentum of peltate, stellate hairs on stems and leaves, comparable inflorescence structure and similar flowers. Unlike many species of *Pityrodia*, the adaxial anthers in both *P. iphthima* and *P. augustensis* are longer than the abaxial anthers. Diagnostic differences between *P. iphthima* and *P. augustensis* are given in Table 1 and shown in Figure 2.

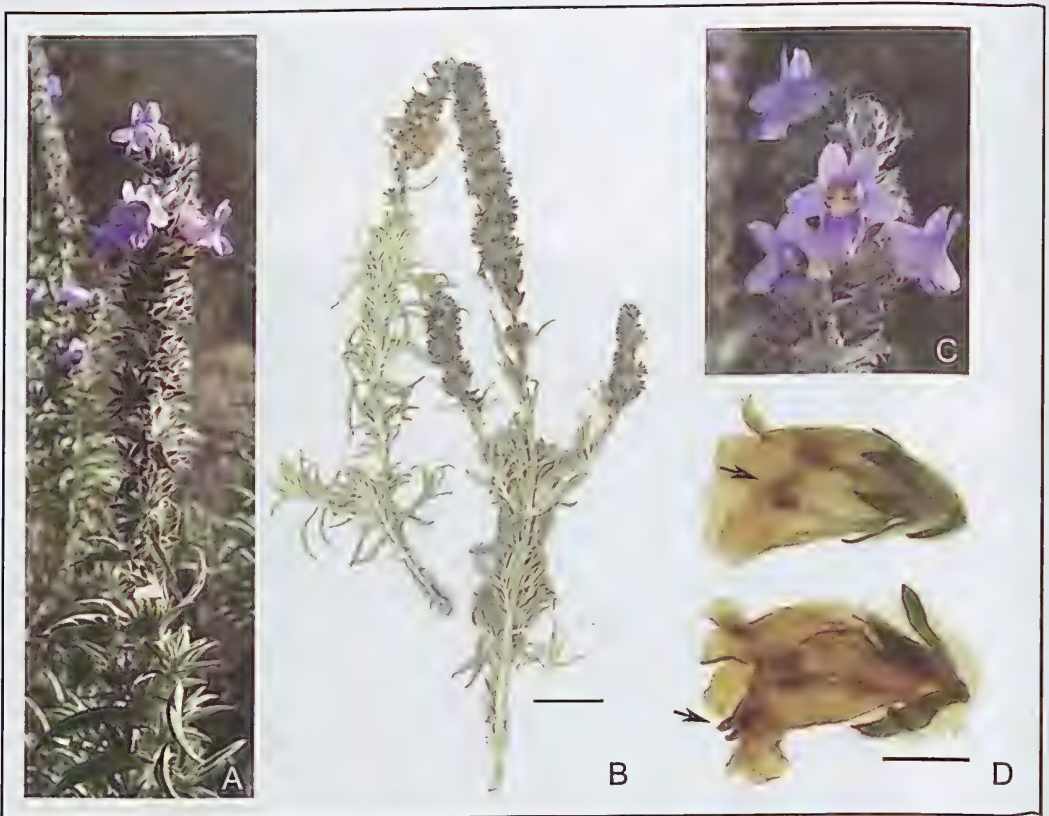


Figure 2. A – *Pityrodia iphthima* showing the tall raceme-like inflorescence and conduplicate, discolorous leaves; B – holotype of *P. iphthima* (PERTH 07487266) (scale = 4 cm); C – flowers of *P. iphthima*; D – rehydrated flowers with arrows showing the shorter abaxial filament pair in *P. iphthima* (above) (PERTH 07487266) compared to *P. augustensis* (below) (PERTH 01102354) (scale = 1 mm). Photographs A & C by R.A. Meissner.

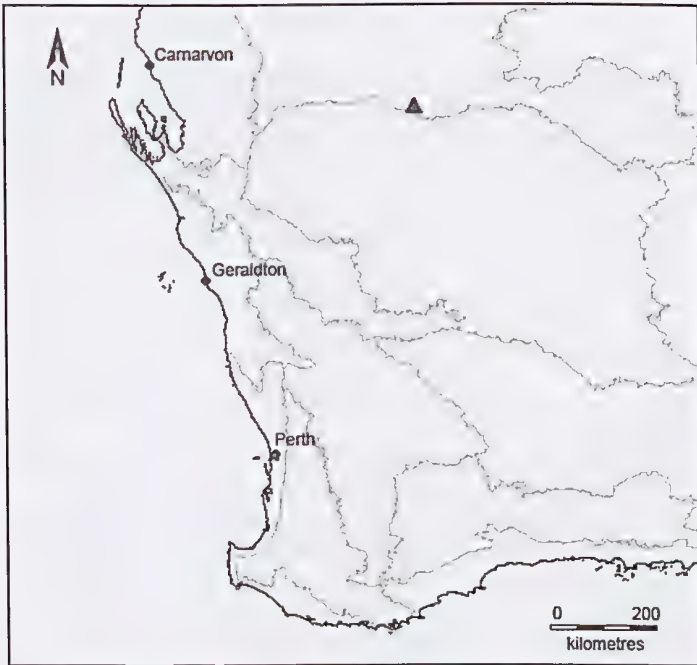


Figure 3. Distribution of *Pityrodia iphthima* in south-west Western Australia.

Table 1. Diagnostic differences between *Pityrodia iphthima* and *P. augustensis*.

Character	<i>P. iphthima</i>	<i>P. augustensis</i>
Leaves	conduplicate, discoloured, almost glabrous adaxially	flat, concolourous, tomentose indumentum on both surfaces
Bracts	narrowly ovate, 7–20 mm long	elliptic, 3–8 mm long
Calyx tube	0.8–3 mm long	0.2–0.35 mm long
Calyx lobes	narrowly ovate; branched hairs 0.7–1.3 mm long on outer surface	narrowly elliptic; branched hairs 1.2–3 mm long on outer surface
Staminal filaments	abaxial pair 7.3–9 mm long; adaxial pair 6.8–7.5 mm long	abaxial pair 8–13.5 mm long; adaxial pair 9.4–11 mm long

Notes on *Pityrodia* sp. Dalwallinu (M. Hislop 1860)

Pityrodia sp. Dalwallinu (M. Hislop 1860) was proposed as a putative new taxon by Mike Hislop (DEC) in 2000 and was included on the Census of Western Australian Plants database. This taxon is relatively short-lived with large, ovate, opposite-decussate leaves. It has become apparent during this study, that this taxon can not be distinguished from *Pityrodia bartlingii* (Lehm.) Benth. In *P. bartlingii* the leaves may be scattered, in whorls of three or infrequently opposite-decussate and juvenile leaves are much larger and more ovate than adult leaves. Accordingly, *Pityrodia* sp. Dalwallinu (M. Hislop 1860) should be regarded as a synonym of *P. bartlingii*.

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